What is claimed is:

1. A closed substrate platform comprising:

a slide element enclosed within a container; wherein,

the slide comprises a defined microfluidic analysis platform; wherein,

the container comprises at least one inlet port for introduction of liquid into the container which delivers liquid to the area for sample analysis; wherein, the container comprises at least one vent for expulsion of air from the container; and,

the container comprises an outlet port for removal of liquid from the area for sample analysis.

2. The closed substrate platform of claim 1, wherein the sample or buffer is introduced into the platform via an inlet port.

3. The closed substrate platform of claim 2, wherein the inlet port is conical.

4. The closed substrate platform of claim 2, wherein the inlet port is connected to a horizontal small chamber directly beneath the inlet port.

5. The closed substrate platform of claim 4, wherein the horizontal chamber is connected to a vertical chamber.

6. The closed substrate platform of claim 5, wherein the vertical chamber is connected to the horizontal chamber at an angle of at least about 90^0.

7. The closed substrate platform of claim 6, wherein the vertical chamber is connected to the bottom of an inlet chamber.

8. The closed substrate platform of claim 5, wherein the vertical chamber is positioned parallel to the inlet port, such that, the sample introduced via the inlet port flows through a U-shape.

9. The closed substrate platform of claim 7, wherein the length of the inlet chamber is at least about 10 mm to at least about 25 mm.

10. The closed substrate platform of claim 9, wherein the width of the inlet chamber is at least about 1 mm to at least about 3mm

11. The closed substrate platform of 7, wherein the inlet chamber is connected to a U-shaped channel.

12. The closed substrate platform of claim 11, wherein the U-shaped channel is comprised of at least two parallel channels connected via at least about two 180^0 semi-circular turns.

13. The closed substrate platform of claim 12, wherein the U-shaped channel is connected to the substrate analysis platform.

14. The closed substrate platform of claim 13, wherein the substrate analysis platform is of a meandering design.

15. The closed substrate platform of claims 1 or 14, wherein the substrate analysis platform is comprised of a meandering design comprising at least about one U-shaped channel.

16. The closed substrate platform of claim 15, wherein the meandering substrate platform is comprised of at least two parallel running stretches of tubes connected via a 180^0 semi-circular end to at least about ten parallel running stretches of tubes connected via a 180^0 semi-circular end.

17. The closed substrate platform of claim 1, wherein the volume of sample required for analysis is at least about 40 :l to at least about 200 :l.

18. The closed substrate platform of claim 1, wherein the substrate analysis platform is comprised of two sections; wherein,

one section, a top section, is comprised of desired immobilized biomolecules; and,

another section, a bottom section, comprising the microfluidics structure of the analysis platform.

19. The closed substrate platform of claim 18, wherein the biomolecules immobilized onto the one section are positioned directly above the microfluidics structure of the analysis platform.

20. The closed substrate platform of claim 18, wherein the top section is placed over the microfluidics structure of the bottom section and sealed.

21. The closed substrate platform of claim 20, wherein the top and bottom section of the substrate analysis platform are sealed using transmission laser welding, and the like.

22. The closed substrate platform of claim 20, wherein the seal is airtight.

23. The closed substrate platform of claim 1, wherein the outlet for removal of liquid is connected to a waste chamber.

24. The closed substrate platform of claim 1, wherein the waste area holds at least about 1 ml of liquid.

25. The closed substrate platform of claim 23, wherein the waste area further contains an absorbent material.

26. The closed substrate platform of claim 25, wherein the absorbent material is a gel.

27. A closed substrate platform comprising:

a slide element enclosed within a container, preferably a sealed container with an opening that can provide fluid communication to the system, and the slide element preferably being plastic,

wherein the slide comprises a defined area for sample analysis,

wherein the container comprises at least one inlet port for introduction of liquid into the sealed container which delivers liquid to the area for sample analysis preferably via a tube or channel,

wherein the sample analysis area is of a meandering design,

wherein the sealed container comprises at least one vent for expulsion of air from the sealed container,

wherein the sealed container comprises an outlet port for removal of liquid from the area for sample analysis preferably via a tube, channel, or the like.

28. A closed substrate platform comprising:

a slide element enclosed within a container, preferably a sealed container with an opening that can provide fluid communication to the system, and the slide element preferably being plastic,

wherein the slide comprises a defined area for sample analysis,

wherein the sample analysis area is of a meandering design,

wherein the container comprises a first inlet port for introduction of a sample into the sealed container and which delivers the sample to the area for sample analysis preferably via a tube or channel,

wherein the container comprises a first vent for expulsion of air from the sealed container due to introduction of sample through the first inlet port,

wherein the sealed container comprises a second inlet port for introduction of a fluid such as a wash buffer into the container and which delivers the fluid (preferably wash buffer) to the area for sample analysis preferably via a tube or channel, and

wherein the container comprises a second vent for expulsion of air from the container due to introduction of fluid through the second inlet port.

29. A closed substrate platform comprising:

a slide element enclosed within a container, preferably a sealed container with an opening that can provide fluid communication to the system, and the slide element preferably being plastic,

wherein the slide comprises a defined area for sample analysis,

wherein the container comprises at least one inlet port for introduction of liquid into the sealed container which delivers liquid to the area for sample analysis preferably via a tube or channel,

wherein the sample analysis area is a straight channel,

wherein the inlet port is fitted with a rubber or silicon-based adaptor for introduction of a sample into the sealed container; and,

said adaptor is conically shaped to allow for introduction of the sample into the adaptor with a minimized risk of spillage or back flow,

wherein the fluid travels from the adapter to the analysis area through a canal which is interrupted by a flow restrictor, afterwhich,

the fluid travels from the analysis area through a canal and arrives at a buffer chamber which is connected to a short capillary canal that opens into a waste area,

wherein, the waste area ends in a vent, shaped as a capillary chamber.

30. The closed substrate platform of claim 29, wherein the straight narrow channel preferably is at least about 1 mm wide and about 3 mm wide.

31. The closed substrate platform of claim 29, wherein comprises at least one individual straight narrow channel to about five individual straight narrow channels.

32. The closed substrate platform of claim 27, 28, or 29 further comprising a waste area to receive fluid from the sample analysis area.

33. The closed substrate platform of claim 32, wherein the waste area holds at least about 2 ml of fluid.

34. The closed substrate platform of claim 32, wherein the waste area holds at least about less than 1 ml of fluid.

35. The closed substrate platform of claim 33 or 34 wherein the waste area is comprised of a meandering design.

36. The closed substrate platform of claim 35, wherein the waste area is connected to a vent in the shape of a capillary tube.

37. The closed substrate platform of any one of claims 1, 27 through to 29, wherein the inlet ports and vents comprise a resealable septum.

38. The substrate platform of any one of claims 1, 27 through to 29, wherein the substrate platform further comprises a mark used to identify the slide.

39. The substrate platform of claim 38, wherein the mark is a bar code.

40. The substrate platform of claims 1, 27 through to 29, wherein the slide is constructed from one or more polymer materials of polycarbonate or Topas (COC) or COP.

41. The substrate platform of claims 1, 27 through to 29, wherein the surface of the slide is treated so as to increase the binding capacity of the slide.

42. The substrate platform of claims 1, 27 through to 29, wherein the slide is constructed of a material which is resistant to temperatures over a range of -5°C to +105°C.

43. The substrate platform of claims 1, 27 through to 29, wherein the slide is constructed of a material which is resistant to pH over a range of pH=1 to pH=13.

44. The substrate platform of claims 1, 27 through to 29, which is dimensioned so as to be compatible with equipment capable of handling a standard microscope slide.

45. The substrate platform of claim 29, wherein the dimensions of the slide element are at least about 75 mm to at least about 76 mm long, at least about 24 mm to at least about 25mm wide, and at least about 1 mm to at least about 2 mm thick.

46. The substrate platform of claim 45, wherein the slide element is at least about 1 mm thick.

47. The substrate platform of claims 1, 27 through to 29, which is constructed using injection molding.

48. The substrate platform of claims 1, 27 through to 29, which further comprises immobilized nucleic acid sequences.

49. The substrate platform of claim 48, wherein the nucleic acid sequences are modified.

50. The substrate platform of claim 49, wherein the nucleic acid sequences contain at least one modified nucleotide.

51. The substrate platform of claim 49, wherein the nucleic acid sequences contain at least one locked nucleoside analogue.

52. The substrate platform of claim 49, wherein the nucleic acid sequences are completely composed of locked nucleoside analogues.

53. The substrate platform of claim 49, wherein the nucleic acid sequences contain at least one modified internucleoside linkage.

54. The substrate platform of claim 49, wherein the nucleic acid sequences contain at least one phosphorothioate internucleoside linkage.

55. The substrate platform of claim 49, wherein all of the internucleoside linkages of the nucleic acid sequences are phosphorothioate.

56. The substrate platform of claim 49, wherein the nucleic acid sequences comprise at least one modified nucleotide and at least on modified internucleoside linkage.

57. The substrate platform of claim 48, wherein each immobilized nucleic acid with a unique sequence is located at a defined position.

58. The substrate platform of claim 57, which comprises at least 100 unique sequences per cm^2.

59. The substrate platform of claim 57, which comprises at least 400 unique sequences per cm^2.

60. The substrate platform of claim 57, which comprises at least 900 unique sequences per cm^2.

61. The substrate platform of claim 57, wherein each immobilized nucleic acid contains from about 500 to about 1000 nucleotides.

62. The substrate platform of claim 57, wherein each immobilized nucleic acid contains from about 100 to about 500 nucleotides.

63. The substrate platform of claim 57, wherein each immobilized nucleic acid contains from about 10 to about 100 nucleotides.

64. The substrate platform of claim 57, wherein each immobilized nucleic acid contains from about 2 to about 30 nucleotides.

65. The substrate platform of claim 48, wherein the nucleic acid sequences are immobilized onto the slide using a photochemical linker.

66. The substrate platform of claim 65, wherein the nucleic acid sequences are immobilized onto the slide using anthraquinone.

67. The substrate platform of claim 48, wherein a linker connects either the 5' or 3' ends of the nucleic acid sequences to the surface of the slide.

68. The substrate platform of claim 48, wherein the nucleic acid sequences are immobilized onto the surface of the slide after synthesis.

69. The substrate platform of claim 48, wherein the nucleic acid sequences are synthesized on the surface of the slide.

70. The substrate platform of claim 48, wherein the nucleic acid sequences are double stranded.

71. The substrate platform of claim 48, wherein the nucleic acid sequences are single stranded.

72. The substrate platform of any one of claims 1 through 71 which further comprises immobilized polypeptides.

73. The substrate platform of claim 72, wherein the immobilized polypeptides contains at least one modification selected from the group consisting of phosphorylation or glycosylation.

74. The substrate platform of claim 72, wherein each immobilized polypeptide with a different amino acid sequence is located at a defined position.

75. The substrate platform of claim 74, which comprises at least 100 unique polypeptide sequences per cm^2.

76. The substrate platform of claim 74, which comprises at least 400 unique polypeptide sequences per cm^2.

77. The substrate platform of claim 74, which comprises at least 900 unique polypeptide sequences per cm^2.

78. The substrate platform of claim 72, wherein the polypeptides are immobilized onto the slide using a photochemical linker.

79. The substrate platform of claim 72, wherein the polypeptides are immobilized onto the slide using anthraquinone.

80. The substrate platform of claim 72, wherein a flexible linker connects either the amino-termini or carboxy-termini of the polypeptides to the surface of the slide.

81. The substrate platform of claim 72, wherein the polypeptides are synthesized on the surface of the slide.

82. The substrate platform of claims 27 through to 29, wherein the analysis area is modified to facilitate attachment and growth of cells.

83. A method for identifying a nucleic acid sequence capable of binding to a biomolecule comprising:

immobilizing each unique nucleic acid sequence from a library of nucleic acid sequences onto the substrate platform of claims 1, 27 through to 29,

optionally washing the substrate platform to remove contaminants,

incubating the immobilized nucleic acid sequences with a biomolecule under conditions which are conducive to specific interaction between the biomolecule and the nucleic acid sequences,

optionally washing the substrate platform to remove any non-specifically bound biomolecules,

detecting the location of the nucleic acid sequences which bound to the biomolecule.

84. The method of claim 63, wherein the biomolecule is a nucleic acid sequence.

85. The method of claim 63, wherein the biomolecule is a polypeptide.

86. The method of claim 63, wherein the location of the nucleic acid sequences which bound to the biomolecule is detected by virtue of a tag on the biomolecule.

87. The method of claim 86, wherein the tag on the biomolecule is a detectable moiety.

88. A method for identifying a polypeptide capable of binding to a biomolecule comprising:

immobilizing each unique polypeptide from a library of polypeptides onto the substrate platform of claims 1, 27 through to 29,

optionally washing the substrate platform to remove contaminants,

incubating the immobilized polypeptides with a biomolecule under conditions which are conducive to specific interaction between the biomolecule and the polypeptides,

optionally washing the substrate platform to remove any non-specifically bound biomolecules,

detecting the location of the polypeptides which bound to the biomolecule.

89. The method of claim 88, wherein the biomolecule is a nucleic acid sequence.

90. The method of claim 89, wherein the biomolecule is a polypeptide.

91. The method of claim 89, wherein the biomolecule is a multimeric polypeptide.

92. The method of claim 89, wherein the biomolecule is an antibody.

93. The method of claim 89, wherein the biomolecule is a receptor.

94. The method of claim 89, wherein the biomolecule is a hormone.

95. The method of claim 89, wherein the biomolecule is a drug or drug candidate.

96. The method of claim 89, wherein the location of the polypeptides which bound to the biomolecule is detected by virtue of a tag on the biomolecule.

97. The method of claim 89, wherein the tag on the biomolecule is a fluorescent tag.

98. A method for sample analysis comprising:

applying a sample to the substrate platform of claims 1, 27 through to 29; and,

evaluating the sample.

99. The method of claim 98, wherein the sample is a liquid.

100. Use of the substrate platform of any one of claims 1, 27 through to 29, for sample analysis.

101. Use of the substrate platform of any one of claims 1, 27 through to 29, for detecting DNA sequence variation, DNA sequencing, SNP analysis, genotyping, deletion analysis, gene expression and the like.

102. A method for producing the substrate platform of any one of claims 1, 27 through to 29; wherein,

the slide is comprised of a bottom surface plastic structure, and

the top surface of the slide is comprised of a thin plastic film or laminate; wherein,

said film or laminate is placed over the bottom part of the slide and sealed using heat or adhesive followed by physical pressure to ensure airtight sealing and prevent any liquid or gas from escaping through the seal.